



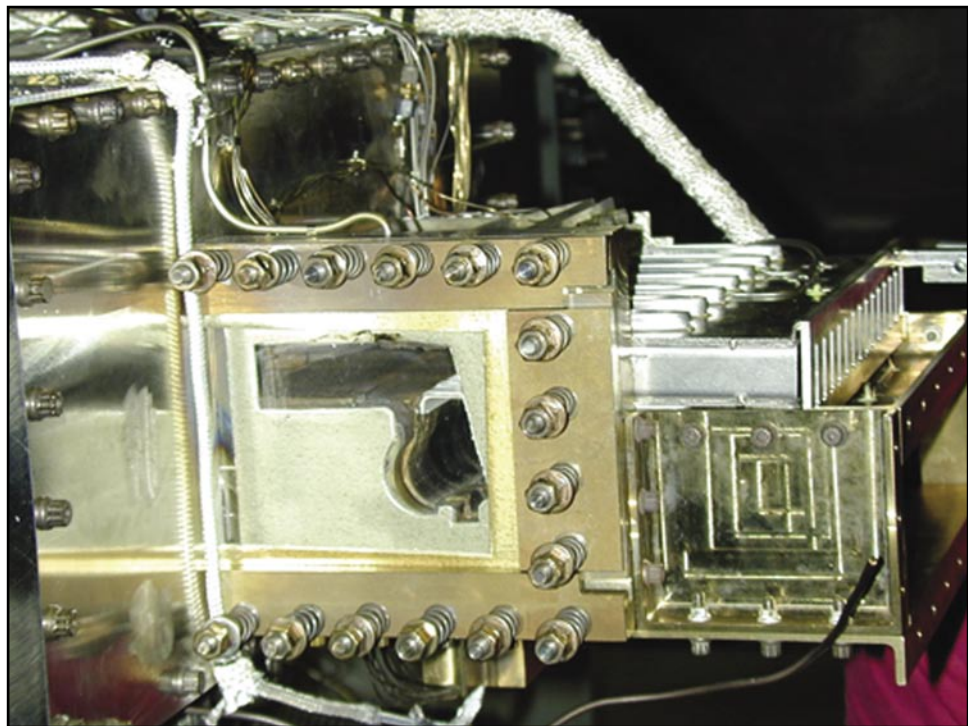
Air Force Research Laboratory | AFRL

Science and Technology for Tomorrow's Air and Space Force



Success Story

AFRL COMPLETES CONFINED RECIRCULATION COMBUSTION TESTS



AFRL engineers successfully completed high-pressure combustor testing as part of a Small Business Innovation Research Phase I contract to develop confined recirculation combustion technology for afterburning applications. AFRL and Williams International developed the ultracompact combustor (UCC) rig under a previous joint effort.



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Accomplishment

Scientists used the UCC rig for the tests, which they conducted in AFRL's High-Pressure Combustion Research Facility. This effort involved testing the combustor over a wide range of pressures and temperatures for performance and lean blowout. In addition, the team modified the rig for subsequent tests to study the effect of mixing combusted core flow with bypass air using a scalloped strut mixer. The mixer generates vortices that scientists use to accelerate the flow throughout the exhaust section. Williams International plans to introduce the resulting combustion and afterburning technologies to the AFRL Versatile Affordable Advanced Turbine Engine program.

Background

AFRL sets component goals for engine demonstrations to meet advanced Air Force (AF) missions. AFRL engineers explore and evaluate novel propulsion concepts that are critical to meet the AF's future needs. AFRL is enhancing component capabilities through the understanding and innovative use of chemistry, aerodynamics, heat transfer, materials, diagnostics, computational fluid dynamics, and design tools.

Propulsion
Emerging Technologies

Additional Information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (05-PR-02)